

South Dakota State University

## Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

---

Electronic Theses and Dissertations

---

1983

### Attitudes of South Dakota Home Economics Teachers Toward the use of Microcomputers

Mary J. Pickard

Follow this and additional works at: <https://openprairie.sdstate.edu/etd>

---

#### Recommended Citation

Pickard, Mary J., "Attitudes of South Dakota Home Economics Teachers Toward the use of Microcomputers" (1983). *Electronic Theses and Dissertations*. 4387.  
<https://openprairie.sdstate.edu/etd/4387>

This Thesis - Open Access is brought to you for free and open access by Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact [michael.biondo@sdstate.edu](mailto:michael.biondo@sdstate.edu).

ATTITUDES OF SOUTH DAKOTA HOME ECONOMICS TEACHERS  
TOWARD THE USE OF MICROCOMPUTERS

BY

MARY J. PICKARD

A thesis submitted  
in partial fulfillment of the requirements for the  
degree Master of Science  
Major in Home Economics  
South Dakota State University  
1983

SOUTH DAKOTA STATE UNIVERSITY LIBRARY

ATTITUDES OF SOUTH DAKOTA HOME ECONOMICS TEACHERS  
TOWARD THE USE OF MICROCOMPUTERS

This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Edna Page Anderson  
Professor and Head  
Home Economics Education  
Thesis Adviser

Date

Ardyce Gilbert, Dean  
College of Home Economics

Date

# ACKNOWLEDGMENTS

I wish to express special gratitude to:

Dr. Edna Page Anderson, my thesis and major adviser, whose guidance was of immeasurable assistance throughout my graduate education.

My fellow South Dakota home economics teachers throughout the state for participating in this study.

Dr. W. Lee Tucker for assisting with analysis of data.

My husband, Ron, and children, Murray and Laura, for their patience and endurance throughout the time I spent working on this.

My brothers, one who inspired me to attempt a graduate degree, the other who left this world before the degree was earned.

My sisters, who inspired, competed with, and challenged me to finish.

MJP

## TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS . . . . .	iii
LIST OF TABLES . . . . .	vi
ABSTRACT . . . . .	vii
Chapter	
One INTRODUCTION . . . . .	1
<u>Significance of the Problem</u> . . . . .	3
<u>Statement of the Problem</u> . . . . .	5
<u>Definition of Terms</u> . . . . .	7
Two REVIEW OF THE LITERATURE . . . . .	10
<u>Components of Attitude</u> . . . . .	11
<u>Advantages of Computer Assisted Instruction</u> . . . . .	13
<u>Disadvantages of Computer Assisted Instruction</u> . . . . .	14
<u>Computer Literacy</u> . . . . .	16
<u>Summary</u> . . . . .	18
Three METHODS AND PROCEDURES . . . . .	19
<u>Sample</u> . . . . .	19
<u>Instrumentation</u> . . . . .	20
<u>Data Collection and Analysis</u> . . . . .	21
<u>Hypotheses</u> . . . . .	22
Four RESULTS AND DISCUSSION . . . . .	24
<u>Background and Description of Subjects</u> . . . . .	24
<u>Availability of Computers</u> . . . . .	26

Chapter		Page
	<u>Additional Microcomputers</u> . . . . .	31
	<u>Interest and Availability</u> . . . . .	31
	<u>Training</u> . . . . .	33
	<u>Statistical Findings</u> . . . . .	34
	<u>Testing of Hypothesis</u> . . . . .	35
	<u>Additional Analysis</u> . . . . .	40
Five	SUMMARY AND IMPLICATIONS . . . . .	45
	<u>Implications</u> . . . . .	45
	LITERATURE CITED . . . . .	48
	APPENDIXES	
A	Letter of Transmittal . . . . .	56
B	Background Information . . . . .	57
C	Attitude Survey . . . . .	62
D	Follow-up Letter . . . . .	65

## LIST OF TABLES

Table		Page
1	Frequency and Percent of Responses on Miscellaneous Data Obtained from Sample . . . . .	25
2	Analysis of Variance Summary for Attitude Scores and Independent Variables . . . . .	28
3	Perceived Accessibility of Computers . . . . .	40
4	Analysis of Variance Summary of Attitude in Relation to Educational Background and Availability . . . . .	42
5	Analysis of Variance Summary in Relation to Education and Length of Time Exposed to Computers . . . . .	44

ABSTRACT

ATTITUDE OF SOUTH DAKOTA HOME ECONOMICS TEACHERS

TOWARD THE USE OF MICROCOMPUTERS

Mary Jean Pickard

The project was designed to assess attitudes of South Dakota secondary home economics teachers toward computers. Attitude was assessed using an instrument developed by David Ahl for measuring public feeling toward computers. Hypotheses relating attitude to educational background, size of school, years of teaching experience, and exposure to and availability of computers were tested. A secondary purpose was to determine teacher preference for learning how to use computers.

A random sample of home economics teachers in 108 schools received the survey instrument. The sample was stratified according to school size. The majority of schools, 90 percent, had computers. However, only 12 percent of the home economics teachers are currently using computers. Of the 89 respondents, 86 percent indicated interest in using computers for instruction in home economics.

Possible attitude score ranged from 30, indicating an extremely positive attitude, to 210, indicating an extremely negative attitude. Mean attitude score for the teachers in this study was 81.78. Using analysis of variance, attitude score was compared with several demographic variables. No significant



relationships were evident. In an additional analysis, no significant relationship was found between teacher commitment to computer use and attitude score.

There was a significant difference in attitude when educational background and availability of computers were considered. There was also a significant difference found when educational background was considered with the length of time computers had been in teachers' schools.

Results of this study do not confirm that new teachers are more oriented to classroom computer use than their more experienced colleagues. Teachers holding higher degrees and teachers from larger schools did not have an attitude advantage.

There is lack of documentation on the use of computers for secondary home economics. No observations have been reported which detail the needs home economists have in implementing computers in their instruction. Workshops was the method subjects preferred for learning how to use computers in instruction. They further specified the inclusion of hands-on experiences.

Implications from this study are: 1) teachers are not fearful of using computers, 2) computers are available and home economics teachers are willing to use them, and 3) there is a need for hands-on training to enable home economics teachers to effectively use computers.

## Chapter One

### INTRODUCTION

Computer power, once the exclusive advantage of the large and wealthy corporations, is now available to schools and homes. Computers are used in the business world for tasks such as sorting and filing information, designing structures and tools, making accounting calculations and budget plans, and as communication devices. The power and speed the business world has had in large computers is now financially within the reach of schools and homes in the form of a microcomputer. In 1983, microcomputers retailed across America for as little as \$100, although the usual price, depending on capacity and accessories, ranged from \$500 to \$2,000.

The first microcomputers were retailed in southern California in 1975. Their growth has been revolutionary. Alvin Toffler (1979: 140), in his book The Third Wave, gives this analogy of the computer and the car.

If the auto industry had done what the computer industry has done in the last 30 years, a Rolls-Royce would cost \$2.50 and get 2,000,000 miles to the gallon.

The analogy is a good one, for up until now, what has revolutionized life in America as much as the automobile? The computer could have an even more revolutionary effect on the future of American life than the car has had.

Home and family life are already affected by computer power. Microprocessors monitor mechanical functions in cars, control the microwave oven in the kitchen, and direct the functions of the

wristwatch. The technology affects our families and children as education is enhanced by toys such as "Little Professor" and "Speak and Spell", both of which contain tiny microprocessor chips.

Personal computer use is expanding into the home as applications of computer technology are extended. The microprocessor first became a popular home appliance in the video games which were played on the family television set. Now computers can do the work of preparing tax returns, analyzing the stock market, controlling home heating, cooling and lighting, and managing a home security system. Microprocessor controlled games have even captured a large portion of the teenage entertainment dollar, formerly used to purchase stereo records.

The impact of computers on education is just beginning to be felt. The rapid expansion of statewide computer-using educator groups and the consistent reports of accelerated achievement using computers has made its mark on the educational scene. In some ways, research on computers in education is at an awkward stage. The evidence that Computer Assisted Instruction (CAI) is superior is in, but the answer to why is still forthcoming and may not be answered for quite some time (Grady, 1982; Foreman, 1982). One educational computing specialist explains: "You can't find a group of parents these days who would stand for their children to be the control group - the non-computer user - when their classmates are getting to use them." (Bracey, 1982:51).

### Significance of the Problem

Educators generally acknowledge that curriculum and instruction needs to be planned to reflect the "prevailing philosophy of the people, the contemporary view of learning, and the needs of society" (Podemski, 1981:30). The necessity of utilizing a variety of instructional techniques has also been recognized for some time (Lewellen, 1971). Innovative teaching techniques which are used to provide the variety of learning experiences include CAI (Foreman, 1982).

The advantages of CAI have been identified by Bracey as follows: (1982:51)

1. Students who receive CAI score better on objective tests than students who receive traditional instruction only.
2. CAI improves retention of learning.
3. CAI improves the speed at which students learn a given amount of material.

One of the major factors delaying widespread implementation of CAI has been expense. Stand-alone computers may cost in excess of \$100,000. Accessing a shared, remote computer via telephone arrangements could cost equally as much (Gleason, 1981). In either case, the cost of CAI was out of reach for nearly all public schools and many colleges until the advent of the microcomputer. During the 1970's and 1980's CAI technology has been refined and made more available. For approximately \$1,000 a school can purchase a micro-computer which is capable of providing a wide variety of instructional

machines within the school (Tinker, 1982). It is time to act on the knowledge that computers have enormous educational potential in other areas, including areas taught predominately by females. There are increasing numbers of computer programs that relate to home economics and consumer education, such as programs on money management or nutrition (St. Marie, 1982).

Grady (1982) predicts that by 1990, half of America's homes will be equipped with computers. These tools will be used for budgeting, food buying, management of credit, appliance selection and assessing housing needs (Magrabi, 1972). Home Economics has traditionally been an area of study focusing on providing students with the skills, attitudes, and knowledge that would enable them to function maximally within their own homes. Preparing students to use computer technology which will be widely available in homes within the next seven years is definitely within the realm of home economics.

#### Statement of the Problem

Now that the cost of a computer to provide CAI is within the budget guidelines of most schools, one might expect extensive instructional uses of computers. Such is not the case. The process of change in education is slow, and there are aspects besides hardware which must be taken into account (Foreman, 1982).

Teachers tend to be somewhat conservative and their relative inexperience with computing machinery suggests a hesitancy to make use of computers (Nansen, 1982). Although studies have resulted in

the prediction of significant use of CAI, the National Science Foundation has collected evidence that indicates several impediments to the use of CAI (James, 1979). The need for quality materials to use to program computers and the resistance of teachers have been identified as barriers to implementation by Chambers and Sprecher (1980).

Teachers are instrumental in the success or failure of programs involving CAI because of their influence on the use of computers within any subject area (Gleason, 1981). Some pessimists have predicted that teachers will reject computers in the same way they rejected some earlier technologies, thus blocking any widespread application of CAI within schools (Milner and Wildberger, 1974). There is no doubt that many teachers are anxious about how to use computers and how to structure content and classroom environments to accommodate this technology (Stevens, 1981).

Oskamp (1977) and Fishbein (1967) have researched the attitude-behavior relationship. Attitudes are predictive of behavior; in this case, attitude toward the computer is predictive of the subject's intention to act, to use or not use the computer. Thus, a teacher's attitude toward or perception of the computer and the experience he/she has had will color the intentions of that teacher toward the use of the computer for instruction.

If South Dakota Home Economics teachers are to implement CAI, it is helpful to first identify their attitudes, since these teachers will be responsible for developing and using CAI in their classrooms. The purpose of this study is to assess the attitudes of home economics

teachers toward the use of microcomputers in the classroom. The baseline data collected in this study could be used to help teachers implement CAI by determining what type of instruction should be provided, and the possible reception to the instruction.

Specific questions to be answered are:

1. What are the attitudes of South Dakota Home Economics teachers toward the use of microcomputers in the Home Economics classrooms?
2. What, if any, is the relationship between teacher attitude and selected factors such as size of school where employed, computer accessibility, teaching experience, prior experience with computers, and educational background?
3. Where and how do Home Economics teachers prefer to learn to use microcomputers?

### Definition of Terms

Throughout this paper the following terms will be used according to the definitions indicated below:

Attitude - a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object (Fishbein, 1967).

BASIC - Beginners All Purpose Symbolic Instruction.

The use of simple English words and common mathematical symbols to perform necessary arithmetic and logical operations to solve problems (Douglas and Edwards, 1979).

CAI - Computer Assisted Instruction.

Computer - a device that receives then follows instructions to manipulate information. If the instructions cannot be changed, the device is not a computer. (Douglas and Edwards, 1979).

Courseware - A combination of content, instructional design and the software which causes a computer to implement instruction (Douglas and Edwards, 1979).

CPU - Central Processing Unit. The heart of the computer, controlling what the computer does (Douglas and Edwards, 1979).

Data - Information given to or received from a computer. (Douglas and Edwards, 1979).

Home Economics Teacher - a certified instructor teaching classes within his/her area of expertise.

Microprocessor - one component of a microcomputer. The "brains" of the central processing unit (CPU) (Douglas and Edwards, 1979).

Monitor - a video display unit or screen, which looks much like a television set (Douglas and Edwards, 1979).

Personal computer - a microcomputer designed for use by an individual for entertainment, instruction and management chores. (Douglas and Edwards, 1979).

Program - a series of instructions to a computer which cause the computer to solve a problem or perform a task.



Douglas and Edwards, 1979).

Software - refers to programs and accompanying documentation.

Software is stored on tape cassettes or discs when not being used by the computer (Douglas and Edwards, 1979).

## Chapter Two

### REVIEW OF THE LITERATURE

The purpose of the study was to assess the attitudes of Home Economics teachers toward computers. The intent was to gather baseline data for use in formulating plans to prepare teachers to implement CAI in their classrooms. The review of literature will focus on teacher attitudes toward computers and the relationship of attitude to behavior. The need for implementation of CAI in Home Economics will also be reviewed.

Experts agree that computers, like other technology in education, will not be productively used unless teachers have positive attitudes toward them. Teachers have to believe that computers can be usable educational tools. (Stevens, 1981; Aiken and Braun, 1980; Chambers and Bork, 1980; Hughes, 1981; Clement, 1981).

Minimal research has been done in the area of teacher attitudes toward computers. Taylor and Parrish (1978) investigated attitudes toward computers in music education through a national survey. They asked 1,180 public school districts and 223 college music departments to give opinions concerning the need for programmed learning techniques to teach music. Forty-nine percent of the public school respondents and 69 percent of the college respondents agreed that centers should be developed for establishing and implementing CAI for music and other areas.

Stevens (1981) surveyed Nebraska educators for knowledge and attitude toward computers. Respondents indicated computer literacy

instruction was necessary, but the subjects, college professors, felt unqualified to teach it. Findings also reflected mixed feelings toward CAI.

In 1976, Lichtman surveyed university students in education for their attitudes toward computers. He found that students enrolled in educational administration courses were more favorable to CAI than were students enrolled in other education courses.

Much of the uncertainty which teachers express can be traced to lack of knowledge about, or experience with computers in education. (Hallworth and Brebner, 1980; Gleason, 1981; Cunningham, 1981; Bolton and Mosow, 1981). Teachers perceive loss of control, unfamiliarity with equipment, equipment failure, and inadequate support material as problems they would face when using CAI. (Bolton and Mosow, 1981; Loop and Christensen, 1980).

### Components of Attitude

Bills (1975:12) states that "attitudes are a help in assessing the presence or absence of threat". Anything that is perceived as potentially damaging to the self or which would require a change in self concept is seen as threatening. Since teachers who are uncertain about using a technology may feel threatened by it, one can understand why those teachers would choose to adopt a wait-and-see attitude toward implementing CAI for their classrooms. Under threat people react to defend themselves. A person may fail to look at facts in order to defend one's self from the perceived threat that CAI poses.

Rokeach (1968) claims that attitudes are more predictive of behavior than is knowledge. Evidence of attitude is taken as two or more behaviors which are consistent on either the positive or negative side of an evaluation dimension. Rokeach also states that attitudes cannot be observed directly but must be inferred from observed consistency in behavior.

Oskamp (1977:19) states that beliefs, opinions, values, and habits are concepts of attitudes, but are not synonymous with attitude. Several features or characteristics of attitude which Oskamp identifies are:

"Readiness for response" - implies a predisposition toward  
a certain behavior.

Relatively enduring - meaning the notion is stable over time.

Attitude is learned.

Response to an attitude is consistent.

The attitude questionnaire provides a stimulus situation. The response illicit a behavior. The behavioral response indicates support or opposition to the stimulus, which in this case is the computer. However, Oskamp (1977) cautions that conclusions about attitudes must be reached by a process of inference, based on the study of responses which are observable.

Jahoda (1966) tells us that attitudes are formed on the basis of knowledge of the object in question. In order to effect a change in attitude, the communicator must be highly credible, or the subject must experience favorable interaction with the attitude object. The

logical conclusion is that persons educating present or future home economics teachers about computer use must have adequate training and/or that care must be taken to provide favorable computer experiences.

### Advantages of Computer Assisted Instruction

Researchers have identified many advantages of CAI. The computer has the ability to individualize the instructional process, to simulate experiences not possible without computers, to simulate experiences at a lower cost than if done without computers, to keep students informed of their progress through immediate feedback and achievement summaries, to provide immediate and systematic reinforcement, and to generate tests and retests. The computer also can allow students to review previous instructions, request special help or provide special enrichment activities. (Chambers and Bork, 1980; Bork and Franklin, 1979; Kerlinger, 1967).

James Kulik (1983), Professor of Education at the University of Michigan, has analyzed over 300 studies which compared CAI to traditional methods of instruction. Over 250 of the studies were eliminated because of methodological flaws, but the remaining 51 studies represent a good cross section of different types of CAI research. Kulik found that students who received computer assisted instruction scored better on objective tests than students who received traditional instruction only. He also found students retention was superior following CAI and that the speed at which students learned

increased with CAI. Other researchers have shown similar results, but Kulik is the only researcher to examine methodologies of other studies before drawing conclusions. (Dence, 1980; Gershman, 1981; Kearsley, 1976; Magidson, 1978; Podemski, 1981; Stevens, 1981).

### Disadvantages of Computer Assisted Instruction

Computers usually receive rave reviews from students and mixed reactions from teachers. Not all teachers are trained or have the inclination to use another piece of classroom machinery. In addition, there are few or no incentives offered teachers to encourage them to learn to use computers. (Loop, 1980). Some teachers are threatened by a machine which "knows more than I do". (Microcomputers, 1980).

One of the greatest benefits of CAI is its yet unexplained ability to motivate students. This might be a negative factor when students become so involved with the computer that their other coursework is neglected. Tension and jealousies among other teachers may affect the student's overall academic performance. (Lewellan, 1971; Grenstein and Yarnish, 1981).

The incompatibility of programs and languages resulting from lack of standardization among the industry is of concern to all computer users. Because BASIC is not basic to all computers, programs and peripherals produced for one company's product are not interchangeable with another company's machines. In education, this means the courseware written for one brand of hardware may not run on another brand. This leads some experts to predict that in the

future, schools will purchase the software and the purchase price will include the hardware to run it. (Gleason, 1981). This lack of universality is a contributing factor in the shortage of quality courseware. The adaption of software to hardware may take almost as much of the programmer's time as writing the original program. (Atkinson, 1978).

Some skeptics of CAI argue that computers are not individualizing instruction as is claimed by the promoters. Rather, students become dehumanized by becoming part of an interchangeable educational delivery system, "a wheel in a cog" so to speak. Also, teachers who attribute students' anti-social behavior to overexposure to television suggest that isolating students to a computer terminal will make anti-social behavior even worse, and that students will be denied opportunities for social interaction which would normally occur during conventional classes. (Microcomputers, 1980).

Some teachers fear microcomputers will encourage "laziness" and lead to further decline in communication skills. Endeavors which require more than pushing a button would be seen as too taxing to a student who has been conditioned to respond by pushing a typewriter key. (Loop and Christensen, 1980).

Others question the claim that using a microcomputer promotes deductive reasoning skills. Instead it is feared that students will be trained to "think like a computer", to process tiny bits of information at a time rather than viewing the whole picture at once. (Microcomputers, 1980:2). Another concern over using computers for

instruction is that school boards and state departments of education will want to narrow the focus of education to basic cognitive skills or bypass the teacher entirely and feed students a standardized curriculum to raise test scores while saving money on teachers salaries. (Eisele, 1979).

The computer is taking its place along side other technologies available to teachers. The teacher can ignore its possibilities or choose to harness its abilities. Research indicates that exposure and education are the keys to understanding and implementing a leading edge in education. (Mayhew, 1981).

### Computer Literacy

Perhaps the greatest argument for the immediate introduction of computers into the Home Economics curriculum is the argument that the "ability to use computers is as basic and necessary to a person's formal education as reading, writing, and arithmetic". (Luehrmann, 1980:99). In 1977, The National Council of Supervisors of Mathematics defined computer literacy as students knowing about the uses of computers and what computers could or could not do.

Today, computer literacy is considered a basic skill. It fits into the curriculum for the same reason that reading, writing, and math are there. (Luehrmann, 1980). Within the next 10 to 15 years, some degree of computer efficiency will be necessary in order to be employed. (Tinker, 1982).



Being without computer skills is like wandering around a collection the size of the Library of Congress--with all the books arranged at random, no Dewey Decimal System, no card catalogue, and of course, no friendly librarian to serve your informational needs. (Naisbitt, 1982:33).

Computer literacy means being able to use the computer as a tool so that human potential can be reached by all persons.

Reading, writing, and computational skills are essential. So are computer skills. Naisbitt (1982:33) claims that in the informational society the two required languages will be English and computer and that every student should acquire an understanding of the versatility and limitations of the computer through first-hand experience in a variety of fields. Today's Home Economic curriculum should also be providing students with the skills they need to operate the technology which will be in their homes within the next 5 to 10 years. (St. Marie, 1982). Already individuals are living in what futurist Alvin Toffler (1981) calls "electronic cottages" where they live, work, are entertained, and do their shopping via electronic means.

Integrating computers into the Home Economics curriculum and providing students with computer literacy can enable students of today to have the basic education needed to cope with the demands placed upon them by a technology oriented society (Attala, 1978). Postponing the introduction of CAI into Home Economics fosters inequality. Students who are not acquiring an understanding of the versatility and limitations of the computer through first-hand experiences in a variety of fields are less well equipped to compete in a

society which already provides special advantages to those who can tell the computer what to do. (Tinker, 1982; Naisbitt, 1982).

### Summary

The literature reviewed affirms that CAI is an educational improvement, but that attitudes of instructors will determine how widely it is implemented. Some of the factors behind negative attitudes have been presented as well as conditions necessary to effect attitude change. The need for implementing CAI into the Home Economics curriculum has been established. The background presented has attempted to show that a study designed to determine the attitudes of Home Economics teachers in South Dakota is preliminary to developing and implementing effective computer awareness and competency.

## Chapter Three

### METHODS AND PROCEDURES

The purpose of the research was to obtain information regarding the attitudes of home economics teachers toward the use of microcomputers. Faculty support has been deemed the most important factor in determining the success of computer assisted instruction. (Loop, 1980). In order to be able to educate home economists to use computers it is advantageous to secure baseline data concerning the possible reception to that instruction.

#### Sample

The population chosen for this study was the 227 home economics teachers in South Dakota's public and private schools in 1982-83. Names and addresses of instructors in the selected population were obtained from the South Dakota State Department of Education and Cultural Affairs, Division of Vocational-Technical Education, Home Economics Education Services. The randomly selected sample of 108 teachers was stratified to represent different enrollment sizes of the schools in which subjects taught. Twenty-five names plus two alternates were randomly drawn to represent each of four groups. Group A teachers taught in schools having a student population of over 500 pupils. Group B teachers represented schools having 251 to 500 students. Group C teachers came from schools having 101 to 250 students and Group D teachers taught in schools having 100 students or less. The 108 subjects represented 47.5 percent of the teachers

employed to teach Home Economics in South Dakota's public and private schools during the 1982-83 school year.

### Instrumentation

Research instrumentation consisted of two parts: 1) background information and 2) attitude survey. The background information section (Appendix B) was developed by the researcher. Questions were designed to elicit responses which would serve as independent variables. These variables were chosen on the belief that the highest degree earned, years of teaching, experience, availability of computers, class size, and the emphasis of a teacher's program would be related to attitude toward using microcomputers as teaching tools.

Part two of the survey, the attitude inventory (Appendix C) developed by David Ahl, was used in 1975 to survey the general public's attitude toward computers and their role in society. The survey originally consisted of a 17 item Likert-type questionnaire divided into four major categories:

1. Computer impact on the quality of life
2. Computer threat to society
3. Understanding the role of computers
4. Understanding the computer itself

Ahl's (1976) survey format was used by David Lichtman (1979) to survey 189 pre-service and in-service educators enrolled in the University of South Carolina's summer program in 1976. Lichtman added six statements, two general in nature and four others more

directly related to education.

For this researcher's purposes, the expanded format was further amplified by the addition of seven items relating computer use to the home and the teaching of Home Economics. These items were viewed by two persons knowledgeable in the fields of home economics and computer assisted instruction and judged for face validity.

Items on the attitude survey were scored on a seven point continuum with 1 being strongly agree and 7 being strongly disagree. Items 5, 6, 10, 18, and 24 were reverse scored. Possible score range was 30 to 210, with low scores indicating a more favorable attitude to computers.

The completed instrument was field tested by three teachers in the subject population. From their suggestions, the background information section was revised to facilitate ease of answering and to reduce response time.

#### Data Collection and Analysis

The questionnaire, with its attached cover letter and pre-addressed and stamped return mailer, was sent to 108 randomly selected teachers on September 10, 1982. Participants were instructed to complete the two portions of the survey and return it in 2 weeks. Surveys were coded by group letter and number to facilitate follow-up. Replies were kept anonymous. A follow-up letter with a second stamped survey was mailed to the 37 subjects who had not responded by the designated date. The initial request for information resulted

in a 59 percent response. Response to the follow-up request yielded an additional 20 surveys or 19 percent of the total. Statistical analysis was done through the South Dakota State University Computer Center with assistance by the State Experiment Station Statistician.

### Hypotheses

Although the main purpose of the study was to obtain information on attitudes, the following null hypotheses were developed to be tested and evaluated to provide additional related information:

1. There is no significant relationship between teacher attitude toward computers and the size of the school where the teacher is employed.
2. There is no significant relationship between attitude toward computers and the amount of a teacher's experience.
3. There is no significant relationship between teacher attitudes toward computers and the size of classes taught.
4. There is no significant relationship in attitude toward computers and the extent of the teacher's educational background.
5. There is no significant relationship between attitudes toward computers and the emphasis of a teacher's program.
6. There is no significant relationship in attitude toward computers and the length of time computers have been

available in the teacher's school.

7. There is no significant relationship between attitude toward computers and the perceived accessibility of the machines.
- ✓8. There is no significant relationship between attitudes toward computers and the teacher's commitment to implement Computer Assisted Instruction.

## Chapter Four

### RESULTS AND DISCUSSION

The purpose of this study was to investigate the attitude of home economics teachers toward microcomputers. Secondary objectives included examination of attitude in relation to selected demographic and school characteristics.

Of the 108 teachers who were selected to participate in the survey, 89 or 82 percent returned usable responses. The data provided by the 89 teachers is the basis for all inferences and conclusions made by the researcher.

#### Background and Description of Subjects

Table 1 includes a summary of background information on the teachers who responded to the survey. The demographic information was used as independent variables for purposes of analysis in this study.

The typical South Dakota Home Economics teacher holds a bachelors degree and has earned 17 additional hours. All South Dakota Home Economics teachers in this study were female. (There is one male Home Economics teacher in the State of South Dakota.) A Home Economics teacher in South Dakota generally teaches grades 9 through 12 in a public high school. Twenty-eight percent of the teachers had been teaching 6 to 10 years and an additional 42 percent had taught 11 or more years. This is considerably above the 8 years of experience the national median shows for female,



Table 1

Frequency and Percent of Responses on Miscellaneous Data Obtained  
from Sample

Characteristic	Frequency	Percent
Does the district own microcomputers		
Yes	80	89.889
No	9	10.112
Has the district purchased additional computers		
Yes	61	77.215
No	18	22.785
Kinds of computers in use		
Apple	14	21.538
Pet	48	73.846
TRS-80	3	4.615
How was interest developed		
Commercial	9	15.789
Formal	10	17.544
Informal	36	63.158
Other	2	3.509
How intend to obtain software		
Develop own	12	30.769
Purchase commercial	10	25.641
Share with teachers	7	17.949
Copy public domain	1	2.564
Modify existing	1	2.564
Other	7	17.949
Preferred way to learn		
One-on-one	6	10.909
Programmed learning	20	36.364
Home Economics workshop	24	43.636
Multi-discipline workshop	5	9.091
No response	34	38.820
Commitment to use		
Ask for time on computers	71	95.946
Ask for funds to purchase	70	94.595
Purchase software from budget	65	86.667
Develop own software	41	70.149
Application for computer in homes		
No purpose	2	2.326
Luxury	8	9.302
Useful now	28	32.558
Limited use	20	23.256
Potential	28	32.558

secondary teachers (Grant and Eiden, 1981). South Dakota's home economics teachers have longevity in their positions.

The average home economics class was a one-semester elective course with 11 to 15 students enrolled. Food and Nutrition was the subject area given most emphasis by 12.35 percent of the participants. Parenting/Child Development was emphasized most in 21 percent of the programs. Consumerism/Management received emphasis in 12 percent and Clothing/Textiles received emphasis in 4 percent of the programs. Housing was not a major area of emphasis by any of the respondents.

#### Availability of Computers

Only 9 of the 89 respondents indicated that their districts did not own any microcomputers (See Table 1). Using this data to generalize about the availability of microcomputers in South Dakota high schools, 90 percent could be expected to own microcomputers. This figure is higher than that reported by Pheng and Associates (1982). Their survey indicated that 86 percent of South Dakota high schools have microcomputers as do 55.7 percent of the elementary schools and 43 percent of the junior high schools in the state. Differences may be attributed to the use of districts in the current study rather than schools.

Over 20 percent of the teachers in this study indicated that this was the first semester microcomputers had been available in their buildings. Another 18 percent of the teachers were in their first year of having micros in their school. Thirty-two

percent of the schools were using the computer for the second or third year.

In comparison, the Pheng and Associates, (1982) survey results showed that 95 percent of all Minnesota students were exposed to microcomputers in 1981. Nebraska reported 1,000 microcomputers in their schools in 1982 and projected a 25 percent increase in ownership for 1982. North Dakota figures showed 90 percent of schools had microcomputers in 1981. Montana reported "fantastic" interest level and a commitment of 10 to 50 percent of a federal block grant to computers. Again, the differences in measuring units should be noted.

According to Market Data Retrieval (Where the Micros Are, 1982), the number of school districts using microcomputers has increased 40 percent since October, 1981. Small districts are now becoming microcomputer owners at a rate ten times faster than the larger districts. Although poorer districts have significantly fewer micros, the fast growth trend seems to be contributing to a leveling out of the distribution of the machines (Smaller, Poorer Schools, 1983).

As the foregoing figures reveal, South Dakota appears to be holding its own in acquiring hardware. However, the state may be falling behind in support of the technology. South Dakota is one of only 18 states that does not have a Computing Educator Group to encourage and promote interest in educational computing (Pheng and Associates, 1982).

### Additional Microcomputers

Most South Dakota school districts with computers have added additional computers since their first purchase. Results of this survey showed 77 percent of the districts acquiring additional machines. The Commodore Pet is the most popular brand of micro-computer, representing 73 percent of the total machines owned by schools which were part of this study. The Apple Computer was second most numerous with 21 percent of the total micros, and the TRS-80 a distant third with 4 percent of the total. One teacher reported having a terminal in the district which would connect with a remote main-frame computer.

### Interest and Availability

Having micros within a school district does not automatically insure that teaching personnel will use them, or that the micros will be available for instructional purposes. Some of the questions on the survey were designed to assess interest and availability (See Table 2).

Sixty-seven teachers or 86 percent of the subjects indicated interest in using micros for instruction in Home Economics with 12 percent already using them. Only 14.1 percent were uninterested in using microcomputers in Home Economics.

Respondents were asked to indicate the perceived availability of the machines for their use. Having machines just for home economics or having machines which could be brought to the department indicated a high degree of availability. Using the

Table 2

## Analysis of Variance Summary for Attitude Scores and Independent Variables

Independent Variable	N	Percent	Mean Attitude	SD	F Value*	Probability
School Size				18.519	.60	.6215
501 and over	22	24.70	78.955			
251 to 500	22	24.70	83.864			
100 to 250	22	24.70	79.864			
Less than 100	23	25.84	84.435			
Teaching Experience				18.7524	.33	.8927
First year	2	2.25	88.000			
1 to 2 years	7	7.87	77.000			
3 to 5 years	17	19.10	85.176			
6 to 10 years	25	28.09	79.520			
11 to 15 years	19	21.35	81.895			
16 or more years	19	21.35	82.842			
Class Size				18.2045	1.46	.2225
10 or less	23	25.84	84.0695			
11 to 15	39	43.82	84.0769			
16 to 20	13	14.61	79.7692			
21 to 30	12	13.48	70.9166			
over 31	2	2.25	90.0000			
Classes Required				18.49856	.10	.7530
Yes	23	26.437	81.1739			
No	64	73.563	82.5937			
Semester Classes				18.0665	1.23	.2699
Yes	64	72.727	80.9060			
No	24	27.273	85.7083			

Table 2 cont.

Independent Variable	N	Percent	Mean Attitude	SD	F Value*	Probability
Emphasis Given				18.35135	.733	.5425
Parent/Child Dev.	18	21.176	84.9444			
Consumer Ed/Mgt.	10	11.765	88.1000			
Housing	0					
Food/Nutrition	53	62.353	8.205			
Textiles/Clothing	4	4.706	79.000			
Grades Taught				18.1211	1.44	.2084
Sixth	1	1.124	42.00			
Seventh	11	12.360	81.1818			
Eighth	14	15.730	79.1429			
Ninth	39	43.820	86.1026			
Tenth	10	11.236	77.5000			
Eleventh	12	13.483	77.6667			
Twelvth	2	2.247	86.5000			
Computers in Building				18.8555	1.44	.2084
Yes	74	90.244	81.47297			
No	8	9.756	86.50000			
Time Computers Available				18.8069	.75	.5926
1 semester or less	16	20.513	82.5000			
Up to one year	14	17.949	73.2143			
1 to 2 years	25	32.051	81.9600			
2 to 3 years	13	16.667	85.6923			
3 to 4 years	7	8.974	81.5614			
More than 4 years	3	3.846	87.6667			
Currently Using Computers				18.8450	2.81	.0977
Yes	10	12.048	72.9000			
No	73	87.952	83.4110			

Table 2 cont.

Independent Variable	N	Percent	Mean Attitude	SD	F Value*	Probability
Interest in Using				18.8450	2.81	.0977
Yes	67	85.897	80.5373			
No	11	14.103	90.8182			
Where Available for Use				16.2200	1.25	.2932
Bring to Department or have own machines	27	42.188	75.4815			
Use in Resource Center or other classroom	28	43.750	80.7857			
Not Available	9	14.069	84.1111			
Educational Background				18.3406	1.17	.3273
Bachelors	11	12.360	88.1000			
Bachelors plus	64	71.191	79.7846			
Masters	7	7.865	90.2957			
Masters plus	7	7.865	83.1428			

\*Value of F is approximately equal to 1 when due to random fluctuation only.

N = Number of respondents.

microcomputer in a resource center or in another classroom indicated a moderate degree of availability. Machines in the building but not available for home economics use was a third option. Forty-two percent of the teachers felt that the microcomputers were very available for them, while 43.9 percent felt they were moderately available. The machines were deemed unavailable for use by only 14.1 percent of the teachers. Further analysis of the data indicated the 14.1 percent of the teachers who indicated low interest either perceived the machines as unavailable or failed to respond to the question on availability.

Most teachers, 63.2 percent, became interested in using microcomputers through informal means such as word-of-mouth, reading a magazine, or family use. This is consistent with results gathered in an Electronic Learning survey. According to that survey educators "relied primarily on word-of-mouth from colleagues for purchasing electronic learning equipment" (Computer Used More Widely, 1982). Other important sources of information reported in the national survey were company representatives, literature, trade shows and conventions, magazines and media, and sales people in retail stores. In South Dakota, formal training accounts for interest in 17.5 percent of the subjects surveyed and advertising and other commercial efforts interested an additional 15.8 percent of the subjects.

Most subjects of this survey, 30.8 percent, said they would obtain software by developing their own. A second means of



obtaining the software would be to purchase commercial products (25.6 percent). Planning to develop software may indicate unrealistic expectations concerning the amount of skill and time required to create programs. Weimers (1981) reports that his students, who were all teachers, spent a minimum of 50 to 80 hours writing a "modest program". Other ways of obtaining software were to share with another teacher, 17.9 percent, copy public domain programs, and/or modify existing software for home economics, 5 percent.

### Training

Respondents indicated they would prefer to learn to use the computer in a workshop for Home Economics. They further specified they would like to have hands-on experience in using the microcomputers. Other alternatives ranked by popularity were: 1) programmed learning at the computer, 2) one-to-one instruction by a fellow faculty member, 3) cross disciplinary workshops, 4) semester length courses, and 5) being self-taught.

Grady (1982) reports great success with a computer training course for teachers in Grand Forks, North Dakota. The course stressed computer use, not programming. If a teacher does not need to teach programming, Grady recommends not spending the time learning the process because program writing is an unrealistic goal for most full-time teachers. Instead, time should be devoted to becoming "demanding, discriminating consumers of commercial programming efforts" (Grady, 1982:26).

Pickard (1982) reports that full-time programmers average only 13 lines of program per 8 hour day. In one large North Dakota district of 450 teachers, only 15 teachers took a course offered in programming. By the end of the course, most reported being frustrated because there was "too much to learn in too little time" (Nansen, 1982:24).

An alternative for persons not wanting programming is a computer use course for teachers which teaches little programming. Gleason (1981), Rawitsch (1981), Vockell (1981), and Nansen (1982) advocate such a course which would include topics such as how to operate a computer, how computers can be useful for teachers, integration of computer applications into the curriculum, and evaluation of programs. Secondary topics, to be covered superficially, would be writing a program and designing software for a specific application.

### Statistical Findings

Preliminary examination of the data consisted of frequency distributions and cross-tabulations of the variables in order to determine potentially significant relationships between attitude toward computers and the other variables in the study. Analysis of variance was used to determine significance. Significance was measured at the .05 level and beyond in all cases.

The thirty item instrument measured attitude using a 1 to 7 point scale. The scale allowed respondents to indicate agreement or disagreement with the statement. A response of 1 indicated

strong agreement and a 7 indicated strong disagreement. The middle point, 4, was a neutral position. Statements were worded so that positive attitudes would be consistent with agree responses. Thus, the lower the scores the more positive the attitude.

Mean attitude scores for the Home Economics teachers in South Dakota ranged from 78.95 to 84.43. The overall mean attitude score was 81.78. A score of 180 to 210 would indicate neutral to unfavorable responses to all thirty questions on the attitude scale. A score of 30 to 180 would indicate complete agreement to a neutral position on all questions. Thus, the overall attitude of South Dakota's Home Economics teachers was favorable toward computers.

### Testing of Hypothesis

#### Hypothesis One

There is no significant relationship between teacher attitude toward computers and the size of the school where the teacher is employed.

Instructional budgets and inservice opportunities are more ample in larger schools. A market survey reported in the article, "Smaller, Poorer Schools Catching Up in Computers", shows a correlation between district size and computer ownership. Nationwide, smaller districts have been less apt to own computers. Since attitude development is the result of all experiences an individual has had (Roberts, 1981), this researcher believed those teachers from larger schools would have been exposed to computers for a longer time and would have developed a more favorable attitude. However, hypothesis one was not rejected because there was no significant

difference in the mean attitude scores of subjects who taught in the various sizes of schools.

### Hypothesis Two

There is no significant relationship between attitude toward computers and the amount of a teacher's experience.

Magrabi (1972:27) reports that "the use of CAI will require change in established patterns of instruction and restructuring of the traditional role of the teacher". A frequent assumption is that experienced teachers have less favorable attitudes toward classroom use of computers because implementing CAI would mean having to re-structure classes and change their teaching style. The assumption was shown not to be true in the present study. The results of testing hypothesis two indicated that the attitude toward computers of teachers who have had years of experience was no more favorable or unfavorable than the attitude of the relatively inexperienced teacher. The hypothesis was not rejected. Another related assumption is that individuals in their first or second year of teaching, recent college graduates who were more likely to have had some exposure to computers and CAI as undergraduates, might be expected to express more positive attitudes toward computers. No evidence resulted to support such an assumption. Results from a study by Dickerson and Pritchard in 1981 confirm these findings. A partial explanation may be found in the fact that the college students enroll in technical computer courses but not in courses which enable the prospective teachers to develop competencies in micro-technology

for education. Podemski (1981:31) reports that "neither former public school experience nor teacher training have emphasized computer based learning". In other words, neither current nor prospective teachers have experiences for implementing CAI at the present time.

### Hypothesis Three

There is no significant relationship between teacher attitudes toward computers and the size of classes taught.

This researcher proposed that teachers having larger classes would be more positive toward using computers because the computer could lighten the paper work load. The findings from testing hypothesis three show that class size was not significant in affecting teacher attitude toward the use of microcomputers. There was very little difference in attitude among teachers with various class sizes and the differences were not significant. Hypothesis three was not rejected.

### Hypothesis Four

There is no significant relationship in attitude toward computers and the extent of the teacher's educational background.

Most educators would assume that earning a higher degree would indicate that a teacher is more receptive to further learning and possibly more willing to experiment. However, the results of testing hypothesis four indicated that additional education alone is not helpful in raising the attitude score toward computers.

Hypothesis four was not rejected because there was no significant difference between scores of those who had a bachelors degree and those teachers who had earned additional hours beyond the bachelors or an advanced degree.

#### Hypothesis Five

There is no significant relationship between attitudes toward computers and the emphasis of a teachers program.

Since there is more software to support teaching Consumer Education/Management/Family Finance, it might be assumed that teachers who emphasize this program area would have a more favorable attitude toward computers. However, the results of testing hypothesis five did not support this supposition. No significant relationship was found between attitude score and any of the program emphasis areas. Hypothesis five was not rejected.

#### Hypothesis Six

There is no significant relationship in attitude toward computers and the length of time computers have been available in the teachers school.

The initial fear that one could damage the machine or otherwise hinder the learning process is termed "computerphobia". "Computerphobia is often cited as a principal cause for the slow acceptance or in some cases the complete rejection of the computer as a teaching tool" (Clement, 1981:32). Results of the survey indicated a range of scores as shown in Table 1. Computerphobia was not apparent to a great extent for the subjects in the current

Table 3  
Perceived Accessibility of Computers

Location	Availability	N	Attitude Score
Computers brought to classroom	very	27	75.48
Have machines just for Home Economics			
Use in resource room	moderate	22	80.79
Use in another teacher's classroom			
Machines not available for use in Home Economics	not available	9	84.11

#### Hypothesis Eight

There is no relationship between attitudes toward computers and teachers' commitment to implement Computer Assisted Instruction.

Commitment was measured by the sum of the responses to four questions: I would be willing to

1. ask my administration for computer use time.
2. ask my administration for funds for software purchase.
3. use a portion of my Home Economics Department budget for software purchases.
4. develop software during my own time.

Analysis of variance testing between attitude score and commitment revealed no significant differences. Therefore, the hypothesis was not rejected.

#### Additional Analysis

In research in education, often the qualities one is attempting to measure result from a combination of factors and their effect upon each other. Since no significant differences were found for

any of the proposed hypotheses, it was decided, upon consultation with the statistician, to do some additional analysis. This analysis consisted of combining independent variables with other variables to determine resulting significance. The following combinations were analyzed:

1. Highest degree earned with attitude, and length of time exposed to computers.
2. Education, attitude, and perceived availability of the computer to the teacher.
3. Attitude, availability of computers, and class size.
4. Attitude, teaching required classes, and class size.
5. Attitude, years of teaching experience, and educational background.
6. Program emphasis, availability, and commitment.
7. Attitude, availability, and commitment.

For teachers who hold a master's degree, there was a significant difference in attitude when computers are perceived as moderately available as compared to highly available or unavailable (See Table 4). However, it should be noted that there was only one subject in certain of the categories, so the inference is drawn on the basis of one response.

When educational background was considered with length of time teachers were exposed to computers, the attitude score was significantly more positive for teachers who have bachelors degrees and have been exposed to computers for two to three years.



Table 4

## Analysis of Variance Summary of Attitude in Relation to Educational Background and Availability

Variable and Level of Significance*	Highest Degree Earned and N <sup>1</sup>	Least Square Mean and Difference <sup>2</sup>	N <sup>3</sup>	F-ratio <sup>4</sup>
Availability (.0448)				2.45
	B.S. (11)			
Moderately available		82.000 <sup>a,b</sup>	3	
Very available		73.333 <sup>a</sup>	3	
Not available		94.000 <sup>b</sup>	1	
	B.S.+(64)			
Moderately available		84.228 <sup>a</sup>	21	
Very available		71.050 <sup>a</sup>	20	
Not available		81.429 <sup>a</sup>	7	
	M.S. (7)			
Moderately available		56.000 <sup>a</sup>	1	
Very available		99.667 <sup>b</sup>	3	
Not available		93.000 <sup>b</sup>	1	
	M.S.+(7)			
Moderately available		72.333 <sup>a</sup>	3	
Very available		72.000 <sup>a</sup>	1	
Not available		---	0	

\* Significant at the .05 level.

<sup>1</sup> N Number of subjects within the category.

<sup>2</sup> Mean values followed by the same letter are not significantly different.

<sup>3</sup> N in each category will not always equal N<sup>1</sup> due to omission of items.

<sup>4</sup> When F-ratio is larger than 1.00 the variation in the group means is more than random chance.

There was no significant difference in scores when computers had been available for use for one or two semesters. (See Table 5). There was a significant difference between having the computer two to three years and having had the computer for three to four years. This researcher posits that the difference may be due to apathy which develops after the newness of the machines wears off.

For teachers who have a master's degree and who have had computers for two to three years, the attitude score is significantly more positive. However, it should be noted that this data is based on only one response. Therefore, caution should be used in making generalizations from this data.

Table 5

Analysis of Variance Summary in Relation to Education and Length of Time Exposed to Computers

Variable and Level of Significance*	Highest Degree Earned and N <sup>1</sup>	Least Square Mean and Difference <sup>2</sup>	N <sup>3</sup>	F-ratio <sup>4</sup>
Length of time exposed to computers (.0294)				2.21
	B.S. (11)			
1 semester		103.500 <sup>c</sup>	2	
2 semesters		112.000 <sup>c</sup>	1	
1 year plus		91.000 <sup>b, c</sup>	2	
2 years plus		52.000 <sup>a</sup>	1	
3 years plus		77.000 <sup>b</sup>	3	
More than 4 years		---	0	
	B.S.+(64)			
1 semester		80.384 <sup>a</sup>	13	
2 semesters		70.833 <sup>a</sup>	12	
1 year plus		80.384 <sup>a</sup>	18	
2 years plus		91.700 <sup>a</sup>	10	
3 years plus		80.667 <sup>a</sup>	3	
More than 4 years		88.500 <sup>a</sup>	2	
	M.S. (7)			
1 semester		---	0	
2 semesters		---	0	
1 year plus		92.333 <sup>b</sup>	3	
2 years plus		56.000 <sup>a</sup>	1	
3 years plus		98.000 <sup>b</sup>	1	
More than 4 years		86.000 <sup>b</sup>	1	
	M.S.+(7)			
1 semester		68.000 <sup>a</sup>	1	
2 semesters		72.000 <sup>a</sup>	1	
1 year plus		104.500 <sup>b</sup>	2	
2 years plus		89.000 <sup>a, b</sup>	1	
3 years plus		---	0	
More than 4 years		---	0	

\* Significant at the .05 level.

N<sup>1</sup> Number of subjects within the category.

2 Mean values followed by the same letter are not significantly different.

N<sup>3</sup> in each category will not always equal N<sup>1</sup> due to omission of items.

4 When F-ratio is larger than 1.00 the variation in the group means is more than random chance.

## Chapter Five

### SUMMARY AND IMPLICATIONS

The purpose of this study was to determine the attitudes of Home Economics teachers in South Dakota toward computers. The survey instrument was sent to a random sample of 108 from a population of 227 teachers. The sample was stratified on the basis of school size. The response rate was 82 percent or 89 teachers.

Average mean scores on the attitude scale were positive. The subjects' mean attitude score was 81.78 from a possible range of 30 to 210. High interest in using computers was evident, with 86 percent of the teachers expressing interest in using computers as a tool to teach Home Economics.

Analysis of variance testing, using attitude as the dependent variable and demographic data and school characteristics as independent variables, showed no significant differences. Significant relationships were observed between teachers attitude and their educational background when computers were accessible and had been available over a length of time.

Respondents indicated a preference for learning to use the computers in workshops specifically for Home Economics teachers. They further specified a desire to have hands-on experience in learning to use computers.

#### Implications

The results of this study indicated that most of South

Dakota's school districts have computers (89 percent) and that Home Economics teachers are favorable to the computer use. Twelve percent of the teachers indicated they were already using the machines and an additional 86 percent indicated they wanted to implement computer assisted instruction. In most cases computers were perceived as available. Eighty-six percent of the subjects indicated moderate or very available equipment. Only 14 percent perceived the machines as unavailable for their use. Nine of the 89 subjects reported that their districts did not own computers.

These findings might be interpreted as support for efforts by educators to assist teachers in integrating computer use and literacy into the Home Economics curriculum. Home Economics has traditionally been an area of study that focused on providing students with the skills, attitudes, and knowledge that would enable them to function maximally within their own homes. Preparing students to use computer technology which is predicted to be widely available in homes within the next seven years is definitely within the realm of Home Economics.

Integrating computers into the Home Economics curriculum and enabling students to attain computer literacy is part of the basic education currently needed to cope with the demands placed upon them by an information oriented society. Postponing the introduction of CAI into Home Economics fosters inequality, leaving students less able to compete in a society which already provides special advantages to those who can tell the computer what to do.

Findings from this study indicate that teachers are receptive to training which would enable them to implement computer assisted instruction. The software has become commercially available for home economics teachers use. The biggest needs the classroom teacher has now are help in selecting the courseware which is of most benefit to the program and learning how to evaluate the quality of commercially available software.

Expecting funds for hardware purchases without allowing an ample budget for the software to use the machines is unrealistic. Home Economics teachers are efficient but to expect them to develop the software is to deny them a normal after-work adult life.

Data analysis revealed three interrelated variables which significantly affect attitude toward computers: the availability of computers, the teachers educational background, and the amount of time the teacher has been exposed to educational computing are influential on teacher attitudes. However, the attitude will move toward less positive after two to three years of exposure to the computer.

Further study might be done to determine why the attitude shifts. Study might also be done to enumerate what is being done with CAI at the present time and what recommendations teachers have for additional software. Collaboration between computer programmers and home economists to produce software would be a welcomed addition and resource for teachers.

# LITERATURE CITED

## REFERENCES

- Ahl, David. "Survey of Public Attitudes Toward Computers in Society." Best of Creative Computing, 1 (1976), 77-79.
- Aiken, R. and L. Braun. "Into the 80's with Microcomputer-Based Learning." Computer, 7 (July 1980), 11-16.
- Atkinson, Richard. "Futures: Where Will Computer Assisted Instruction be in 1990." Educational Technology, 4 (April 1978), 60-63.
- Attala, Emile E. "Futures: Where Will Computer Assisted Instruction be in 1990." Educational Technology, 4 (April 1978), 60-63.
- Bills, Robert E. A System for Assessing Affectivity. University, Alabama: University of Alabama Press, 1975.
- ✓ Bolton, Harold and David Mosow. "Microcomputers in the Classroom-A Foot in the Door." Educational Computer, 3 (September-October 1981), 34-36.
- Borg, Walter and Meredith Gall. Educational Research: An Introduction. New York: Longman, 1979.
- Bork, Alfred and Steven Franklin. "Personal Computers in Learning." Educational Technology, 19 (October 1979), 7-12.
- Borich, G. and S. Madden. Evaluating Classroom Instruction. A Sourcebook of Instruments. Reading: Madison-Wesley, 1977.
- Bracey, Gerald. "Computers in Education: What the Research Shows." Electronic Learning, 3 (March 1982), 51-55.
- Chambers, Jack and Alfred Bork. Computer Assisted Learning in U.S. Secondary/Elementary Schools. Association for Computing Machinery. New York: ERIC Document Reproduction Service, ED 202 461, 1980.
- Chambers, Jack and Jerry Sprecher. "Computer Assisted Instruction: Current Trends and Critical Issues." Communications of the Association for Computing Machinery, 6 (June 1980), 232-243.
- Chesser, Barbara and Anne Parkhurst. "Family Life Students Praise the Computer." Journal of Home Economics, 2 (March 1977), 19-21.
- Clement, Frank. "Effective Considerations in Computer Based Education." Educational Technology, 4 (April 1981), 28-32.



- "Computer Used More Widely in Instruction than Administration." Electronic Learning, 1 (May/June 1982), 12.
- ✓ Cunningham, S. "Off to a Good Start with Microcomputers." Educational Computer, 3 (September/October 1981), 38-39.
- Dickerson, Laurel and William H. Pritchard Jr. "Microcomputers and Education: Planning for the Coming Revolution in the Classroom." Educational Technology, 21 (January 1981) 7-12.
- Dence, M. "Toward Defining A Role for CAI: A Review." Educational Technology, 11 (November 1980), 50-54.
- Dizney, H. Classroom Evaluation for Teachers. Dubuque: Wm. C. Brown, 1971.
- Douglas, Charles and John Edwards. "A Selected Glossary of Terms Useful in Dealing with Computers." Educational Technology, 19 (October 1979), 56-66.
- Eisele, James. "Classroom Use of Microcomputers." Educational Technology, 19 (October 1979), 13-18.
- Firebaugh, Frances, N. Johnson and F. Magrabi. Computer Use in Household Decision Making. Report prepared for USDA Subcommittee on Computer Use in Household and Family Decision Making, 1972.
- Fishbein, M. Attitude Theory and Measurement. New York: John Wiley and Son, 1967.
- Foreman, Denise. "Instructional Use of Microcomputers: A Report on B.C.'s Pilot Project." Computing Teacher, 9 (January 1982), 27-51.
- Gershman, J. and E. Sakamoto. "Computer Assisted Remediation and Evaluation: A CAI Project for Ontario Secondary Schools." Educational Technology, 21 (March 1981), 40-43.
- ✓ Gleason, Gerald. "Microcomputers in Education: The State of the Art." Educational Technology, 21 (March 1981), 7-18.
- Grady, D. "Computers-The Key Word is Learn." Learning, 10 (January 1982), 24-38.
- Grant, W. and V. Eiden. Digest of Educational Statistics. National Center for Educational Statistics. Washington: Government Printing Office, 1981.

- Grossnickae, Donald and Bruce Laird. "Profile of Change in Education: A High School Uses Microcomputers." Educational Technology, 21 (December 1981), 7-11.
- Grenstein, L. and R. Yarnish. "The Computer in Education: Myth and Reality," Educational Horizons, (Summer 1981), 158-164.
- Hallworth, H. and A. Brebner. CAI for the Developmentally Handicaped: Nine Years of Progress. Proceedings of 1980 Conference of the Association for the Development of Computer-Based Instructional Systems, March 31 - April 3, 1980, Bellingham, Washington: 260-265.
- Hansen, Thomas et al. "What Teachers Think Every High School Graduate Should Know About Computers." School Science and Mathematics, (November 1979), 467-473.
- Hughes, L. Computers in Home Economics. Address to American Home Economics Association, 72nd Annual Meeting, Atlantic City, New Jersey, June 22, 1981.
- Iverson, G. and H. Norpoth. Analysis of Variance. Beverly Hills: Sage Publication, 1976.
- Jackson, Dixie Porter. Microcomputers in Home Economics. Purdue University, Extension Consumer Economics Report, Xerox, n.d., 213-219.
- Jahoda, Marie ed. Attitudes: Selected Readings. Baltimore: Penguin Books, 1966.
- Joiner, L., B. Silverstein and J. Ross. "Insight from a Micro-computer Center in a Rural School District." Educational Technology, 20 (May 1980), 36-40.
- James, Robert. "Understanding Why Curriculum Innovations Succeed or Fail." School Science and Mathematics, (November 1979), 487-495.
- Kearsley, G. "Some 'Facts' About CAI: Trends 1970-76." Journal of Educational Data Processing, 13 (March 1976), 1-11.
- Kerlinger, Fred. "The First and Second-Order Factor Structures of Attitudes toward Education." American Education Research Journal, 4 (May 1967), 191-205.
- Khazanie, R. Elementary Statistics: A World of Applications. Santa Monica: Goodyear Publishing, 1979.

- Kulik, James, Robert Bangert and George Williams. "Effects of Computer Based Teaching on Secondary School Students." Journal of Educational Psychology, 75 (February 1983), 19-26.
- Lewellen, Lee ed. "Computers in the Classroom." Journal of Educational Data Processing, 8 (May 1971), 33-38.
- Lichtman, David. "Survey of Educator's Attitudes Toward Computers." Creative Computing, 5 (January 1979), 48-50.
- Loop, L. and P. Christensen. Exploring the Microcomputer Learning Environment. Independent Research and Development Project Report #5. San Francisco: ERIC Document, Reproduction Service, ED 201 307, 1980.
- Luehrmann, Alfred. "Computer Literacy-A National Crisis and a Solution for it." Byte, 5 (July 1980), 98-102.
- Magidson, E. "Issue Overview: Trends in Computer-Assisted-Instruction." Educational Technology, 18 (May 1978), 5-8.
- Magrabi, Frances. "Computer Use in Home Economics: Workshop Employs the Possibilities." Journal of Home Economics, 64 (November 1972), 25-29.
- Mayhew, Frances. Capitalizing on Computers. Presentation to American Home Economics Association, 72nd Annual Meeting, Atlantic City, New Jersey, June 22, 1981.
- "Microcomputers: Passing Fad or Educational Revolution." NEA Reporter, November 1980, Xerox, 1-4.
- Milner, Stuart and A. Wildberger. "How Should Computers be Used in Learning?" Journal of Computer-Based Instruction, 1 (August 1974), 7-12.
- Mitzel, H. ed. Encyclopedia of Educational Research. 5th Edition, New York: Free Press Division of Macmillan, 1982.
- Moursund, D. "Personal Computing for Elementary and Secondary School Students." Computing Teacher, 9 (November 1981), 17-23.
- Naisbitt, John. Megatrends. New York: Warner Books, 1982.
- Nansen, C. "Teaching Computer Use-Not Programming." Electronic Learning, 2 (November/December 1982), 24-31.
- National Council of Supervisors of Mathematics. Position Paper on Basic Skills, January 1977.

- Oskamp, Stuart and Catherine Cameron. Attitudes and Opinions. Englewood Cliffs: Prentice Hall, 1977.
- Pheng, Sova. "Survey of the States." Electronic Learning, 2 (November/December 1982), 62-71.
- Pickard, Stanley. Personal Interview. December 26, 1982.
- Podemski, Richard. "Computer Technology and Teacher Education." Journal of Teacher Education, 32 (January/February 1981), 29-33.
- Rawitsch, Don. "Teaching Educators About Computing." Computing Teacher, 9 (December 1981), 27-31.
- Roberts, Harold. "Linking Computer to Curriculum Starts with the Teacher." Educational Computer, 1 (May/June 1981), 27-28.
- Robinson, Sharon. "Questions for Teachers." Today's Education, (April/May 1982), 27-28.
- Rokeach, Milton. Beliefs, Attitudes and Values. San Francisco: Jossey Boss Inc., 1968.
- Sego, R. Jean and Elizabeth A. Unger. "The Computer to Your Rescue." Journal of Home Economics, 69 (September 1977), 55-57.
- St. Marie, Satenig. Ed. "What's New in Technology." Forum, (January 1982), 5-32.
- "Smaller, Poorer Schools Catching Up in Computers." Electronic Learning, 2 (January 1983), 14.
- Stevens, Dorothy. "Computers, Curriculum and Careful Planning." Educational Technology, 21 (November 1981), 21-24.
- Summers, Gene. Attitude Measurements. Chicago: Rand McNally, 1970.
- Taylor, Jack and James Parrish. "A National Survey on the Uses and Attitudes toward Programmed Instruction and Computers in Public Schools and College Music Education." Journal of Computer-Based Instruction, 5 (November 1978), 11-21.
- Tinker, Robert. "Guest Editorial." Computing Teacher, 9 (January 1982), 4-5.
- Toffler, Alvin. The Third Wave. 1979; rpt. New York: William Morrow, Bantam Book, 1981.

Vockell, Edward. "Sex Role Sterotyping by High School Females in Science." Journal for Research in Science Teaching, 18 (May 1981), 209-19.

Weimers, Jim "Implementing Computer Literacy and Computer Programming in a Small School." Computing Teacher, 9 (December 1981), 15-21.

Wells, B. and D. Bell. "A New Approach to Teaching Reading Comprehension: Using Cloze and Computer Assisted Instruction." Educational Technology, 20 (March 1980), 20-22.

"Where the Micro's Are." Electronic Learning, 1 (March/April 1982), 14.

## APPENDIX A

September 13, 1982

Dear Teacher,

Would you help me do research about microcomputers in Home Economics? The attached questionnaire will take approximately 20 minutes to fill out.

You were randomly selected to participate in this study. The purpose of the research is to determine how best to educate home economists to use microcomputers as teaching tools.

Each survey has a code number which will be used to assist in recording returns. All information you provide will be kept confidential. Data will be presented in group form and no individual responses will be reported.

Your cooperation is needed and will be appreciated. The return of the completed form by September 30, 1982 will greatly assist me.

Thank you for your help.

Dr. Edna Page Anderson, Head  
Home Economics Education

Mary J. Pickard  
Graduate Student

## APPENDIX B



## BACKGROUND INFORMATION

INSTRUCTIONS: The information requested on this data sheet is for descriptive purpose. Please answer all items.

1) Indicate the highest degree you have obtained. Check answer and hours earned.

- ☐ 1. Bachelors  
☐ 2. Bachelors plus \_\_\_\_\_ hours  
☐ 3. Masters  
☐ 4. Masters plus \_\_\_\_\_ hours

2) Indicate your Home Economics teaching experience. Check answer.

- ☐ 1. Currently in first year  
☐ 2. One to two years  
☐ 3. Three to five years  
☐ 4. Six to ten years  
☐ 5. Eleven to fifteen years  
☐ 6. Sixteen or more years

3) What is your average class size? Check answer.

- ☐ 1. Ten or fewer students  
☐ 2. Eleven to fifteen students  
☐ 3. Sixteen to twenty students  
☐ 4. Twenty-one to twenty-five students  
☐ 5. Twenty-six to thirty students  
☐ 6. Over thirty-one students

4) Check all the grades you teach.

☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

5) Are any of the courses you teach required?

☐ Yes ☐ No If 'yes', write which ones.

6) Are any of the courses you teach a semester in length or less?

☐ Yes ☐ No If 'yes', write which ones.

7) Rank these areas in order of emphasis given in your program (1 = area of greatest emphasis)

- ☐ Parenting/Child Development
  - ☐ Consumer Education/Management/Family Finance
  - ☐ Housing
  - ☐ Food and Nutrition
  - ☐ Textiles and Clothing
  - ☐ Other (please specify)
- 

8) Does your district own any microcomputers?

☐ Yes ☐ No If 'no', skip to question 18

9) Has your school purchased additional computers since purchasing its first microcomputers?

☐ Yes ☐ No If 'yes', how many?

---

10) Indicate the type and number of microcomputers in your district.

☐ Pet ☐ Apple ☐ TRS-80 ☐ Other (please specify)

---

11) Do you have microcomputers in the building where you teach?

☐ Yes ☐ No

12) How long have the microcomputers been available in your building? Check answer.

- ☐ 1. One semester or less
- ☐ 2. Up to a year
- ☐ 3. One to two years
- ☐ 4. Two to thrhe years
- ☐ 5. Three to four years
- ☐ 6. More than four years

13) Are you using microcomputers in your program?

☐ Yes ☐ No

14) Are you interested in using microcomputers in Home Economics?

☐ Yes ☐ No If 'no', go to question 23.

15) Are the microcomputers available for you and your students to use? Check all that apply.

- ☐ 1. Bring to the Home Economics department to use
- ☐ 2. Use in the resource denter
- ☐ 3. Use in Math, Science or other classroom

- ☐ 4. Have machine(s) just for Home Economics
  - ☐ 5. In building, but not available for Home Economics use.
  - ☐ 6. Arrangements other than above. (please specify)
- 

16) What got you interested in using computers for Home Economics?  
Check all that apply and asterisk most important.

- ☐ Commercial display/advertising
  - ☐ Tuition workshop or class - not provided by your employer
  - ☐ In-service provided by your school
  - ☐ Word of mouth
  - ☐ Family use
  - ☐ Other - (please specify)
- 

17) How do you obtain programs for use? Check all that apply and asterisk most important.

- ☐ Develop own
  - ☐ Purchase commercial software
  - ☐ Share with other teachers
  - ☐ Copy public domain programs
  - ☐ Modify existing software to fit Home Economics Curriculum
  - ☐ Other - (Please specify)
- 

18) How would you prefer to learn to use microcomputer? Check all that apply and asterisk most important.

- ☐ Self taught
  - ☐ One-on-one instruction by another faculty member
  - ☐ Programmed learning right at the computer
  - ☐ Workshop on computers for Home Economics
  - ☐ Workshops on computers including other disciplines
  - ☐ Semester length courses in programming and operation
  - ☐ Other - (please specify)
- 

19) I would be willing to ask my administration for computer use time?

☐ Yes ☐ No

20) I would be willing to ask my administration for funds for software purchases.

☐ Yes ☐ No

21) I would be willing to use a portion of my Home Economics Department budget for software purchases.

\_\_\_\_\_ Yes \_\_\_\_\_ No

22) I would be willing to develop software during my own time.

\_\_\_\_\_ Yes \_\_\_\_\_ No

23) Do you see any application for the use of computers in the home? Check all that apply and asterisk most important.

\_\_\_\_\_ No purpose in the home

\_\_\_\_\_ An expensive luxury item

\_\_\_\_\_ Useful at the present time

\_\_\_\_\_ Limited usefulness

\_\_\_\_\_ Potential for use in the future.

## APPENDIX C



14. Credit rating data banks are a worthwhile use of computers.	1	2	3	4	5	6	7
15. Computers can improve health care.	1	2	3	4	5	6	7
16. Computers are improving law enforcement.	1	2	3	4	5	6	7
17. Computers can improve education.	1	2	3	4	5	6	7
18. Our country would be better off if there were no computers.	1	2	3	4	5	6	7
19. If I had a computer in my classroom it would help me be a better teacher.	1	2	3	4	5	6	7
20. I have, or someday will have, a computer in my home.	1	2	3	4	5	6	7
21. Computers can teach mathematics.	1	2	3	4	5	6	7
22. Computers can teach reading.	1	2	3	4	5	6	7
23. Computers can teach home economics.	1	2	3	4	5	6	7
24. Computers may someday take my job.	1	2	3	4	5	6	7
25. A computer can help a family manage it's finances.	1	2	3	4	5	6	7
26. A computer could remind a car owner that the warranty was about to expire on the car.	1	2	3	4	5	6	7
27. It would be easier to achieve a balanced family diet by using a computer.	1	2	3	4	5	6	7
28. Temperature settings of home heating and cooling systems can be controlled by a computer.	1	2	3	4	5	6	7
29. The home computer could function as an electronic news service.	1	2	3	4	5	6	7
30. A home computer could be used to maintain an inventory of food.	1	2	3	4	5	6	7

## APPENDIX D



October 20, 1982

Dear Teacher,

Do you recall seeing the attached form which was mailed to you during September? These questionnaires supply the data I need to write my Masters thesis.

Please help me. If you have not already done so, fill out the attached questionnaire and return it to me. The stamp is supplied.

I need your help. Without your questionnaire I do not have sufficient data to analyze for some categories. Please take the time to answer this questionnaire and put it in the mail today.

Sincerely,

Mary J. Pickard  
Graduate Student